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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,154	03/11/2005	Tatsuo Akai	0020-5309PUS1	9169
2292	7590	09/06/2007		
BIRCH STEWART KOLASCH & BIRCH			EXAMINER	
PO BOX 747			HWU, JUNE	
FALLS CHURCH, VA 22040-0747				
			ART UNIT	PAPER NUMBER
			1661	
			NOTIFICATION DATE	DELIVERY MODE
			09/06/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/511,154	Applicant(s) AKAI ET AL.	
	Examiner June Hwu	Art Unit 1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7,9-15 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 1,2 and 9-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5-7,17 and 19-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment to the claims and specification filed June 20, 2007 is acknowledged and entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in the prior Office action.

2. Applicants' claim for benefit of priority based on PCT/JP03/04681 filed on April 14, 2003 is acknowledged.

3. The drawings filed June 20, 2007 are approved.

Status of the Claims

4. Claims 4, 8, 16 and 18 are cancelled; claims 1, 2 and 9-15 are withdrawn; claims 3, 5-7, 17 and 19-24 will be examined on the merits.

The objections of claims 4, 8, 16 and 18 are withdrawn due to Applicants' cancellation of the claims.

The rejection of claim 8 under 35 U.S.C. 112, second paragraph is withdrawn due to Applicants' cancellation of the claim.

The rejection of claims 3, 5-8, 19 and 20 under 35 U.S.C. 102(b) over Akai (U.S. Patent No. 6,315,678 B1) is withdrawn because Akai does not disclose the concept of plant transformation.

The rejection of claims 3, 5 and 8 under 35 U.S.C. 102(b) over Tanklevsky et al (U.S. Patent No. 6,306,645 B1) is withdrawn because the Tanklevsky et al do not transform plants.

The rejection of claims 3, 4, and 16-18 under 35 U.S.C. 103(a) over Akai (U.S. Patent No. 6,315,678 B1) in view of Harrison et al (WO 00/63400) is withdrawn because of new rejection below.

Claim Rejections - 35 USC § 112

5. Claims 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 is unclear because it is dependent to claim 9, which is withdrawn.

Claim 22 is unclear because it is dependent to claim 11, which is withdrawn.

Claim 23 is unclear because it is dependent to claim 14, which is withdrawn.

Claim 24 is unclear because it is dependent to claim 15, which is withdrawn.

Claim Rejections - 35 USC § 103

6. Claims 3, 5-7, 17, 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akai in view of Harrison et al (WO 00/63400).

The claims are drawn to an apparatus for transforming plants comprising a plurality of microporous bodies, wherein a plant seed of trees, vegetables, foliage plants, flowering plants and conifers can be germinated and grown by absorbing an aqueous nutrition which is retained in communicating pores in the cylindrical shape microporous body held by the holding means and are transformed by immersing them in a carrier solution.

Akai et al teach a cultivating apparatus for plants comprising of a first microporous box and a second microporous box capable of being fitted into the first microporous box. The microporous boxes are made of No. 10 clay and Porcelain No. 2 clay (col. 5, lines 22-23). To make the microporous box more porous for water absorption and discharge, 50 to 60% by weight of petalite should be mixed with the clay (col. 5, lines 24-25). The communicating pores in the microporous body were achieved by applying a temperature fire of 1200°C to the mold to

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obtain the desired pore size (col. 5, lines 37-41). The holding means in Fig 7 (41) is made of flexible synthetic resin (col. 7, lines 58-59) and in Fig. 8 (50) the holding means (col. 8, lines 5-8) supports the cylindrical shape microporous bodies, wherein there are more than one plants (i.e., plurality of microporous bodies) per apparatus (Fig. 8). The storage tank is the water supply tank (Fig. 6A (46)). The water supply pipe or the aqueous nutrition-supplying means is filled with glass fiber and is between the microporous box so that the nutrient/water or the aqueous nutrition can be supplied into the inner space (col. 6, lines 3-8, Fig. 2B (20) and Fig 6A (44)). The plant seed of any cultivated plant is sown on one side surface of the microporous box (col. 6, line 27). The shape of the microporous body is cylindrical (col. 9, line 57 and see Fig. 3).

Akai et al do not teach the transformation of plants in the apparatus.

Harrison et al teach that direct gene transformation of a plant by vernalizing and germinating seed to form a plant and contacting the part of the plant with *Agrobacterium* (p. 8, lines 3-7) of dicots and monocots (p. 12, lines 26-27). The seeds are planted in a medium capable of supporting growth (p.15, lines 8-9). Any plant growth medium capable of supporting the infiltration process and the *Agrobacterium* within the plant can be used for vacuum infiltration (p. 16, lines 16-18). Then *Agrobacterium* suspension in the infiltration medium is added to a container large enough to immerse the above ground of the plant in the *Agrobacterium* suspension (p. 16, lines 22-24). Then the plant is vacuum at about 28 mmHg for about three minutes (p. 17, lines 3-5). After vacuum infiltration the plant is placed in a growth chamber for about a week and the vacuum infiltration is repeated (p. 17, lines 8-19). Then the treated plant is allowed to set seed (p. 17, lines 23-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus as taught by Akai and to use plant transformation with *Agrobacterium* as taught by Harrison. One of ordinary skill in the art would have been

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motivated to do so given that plant transformation is a way of producing new genetic material for crop improvement (p. 1 lines 6-9 of Harrison reference). Furthermore, one of ordinary skill in the art would have a reasonable expectation of success in the combination of Akai and Harrison because the plants of Harrison could be substituted from the plants used in Akai. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

7. Applicant's arguments filed June 20, 2006 have been fully considered but they are not persuasive.

Applicants urge that Akai does not disclose that large scale of plants for transformation (response pp. 20-21).

This is not found persuasive because Akai shows a plurality of microporous bodies with a cylindrical shape in Fig. 8. Moreover, Akai was combined with Harrison et al to show that plants could be transformed.

Applicants urge that there was no motivation to combine Akai and Harrison et al (response pp. 21-22).

This is not found persuasive because Akai teaches an apparatus for cultivating plants comprising a plurality of microporous bodies and Harrison et al teach direct plant transformation on pp. 20-21. Moreover, the plants of Harrison could be substituted with the plants from Akai.

Conclusion

8. No claims are allowed.

Correspondence

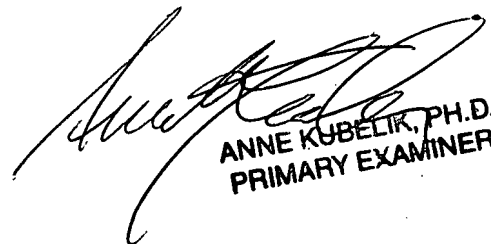
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JH



ANNE KUBELIK, PH.D.
PRIMARY EXAMINER